Health Hazards of Toxic Household Products

Grades

Any

Subjects

Science and Health

Type of Lesson Plan

Activity

Duration

20 – 30 minutes

Materials

- Copies of the Toxic Household Products Checklist
- Alternative to Hazardous Household Chemicals Table

Objectives

TLW…

- Students will be able to identify substances used in their home as toxic or non-toxic.
- Students will learn to appreciate the potential health hazards of household chemicals.

Set

Orally quiz students about why household cleaners are effective. What kinds of things are being cleansed? If students bring up germs, ask how the chemicals kill germs. Steer the conversation so that students understand that many household products are actually designed to kill things (bacteria, insects). That means these substances are toxic. Other household products, such as air fresheners or deodorant, may cause living things to become sick or die, even if that is not the intended purpose of the product.

Instructional Input

Define **toxic substance** - any substance that is capable of harming a person if it enters the body in a large enough dose.

Make sure that the students understand the routes of human exposure to a toxic substance:

- **ingestion** - eating, drinking
- **inhalation** – breathing
- **absorption** - skin contact

Point out that a substance, while toxic, will not harm a person if they are not exposed to it. Also, even if a person is exposed to a toxic substance, they may not become sick unless they are exposed to a sufficient quantity.

Toxic substances may have different health effects depending on the duration of the exposure:
Acute – less than 2 weeks
Intermediate - > 2 weeks but < 1 year
Chronic – 1 yr or more

Handout the *Household Hazardous Chemicals Checklist*. Explain to the students that this Checklist contains many common household products. Ask them whether or not they use these products in their home. Record the results of the students in a matrix on the board or an overhead. You may want to work in a percent or fraction lesson here, if appropriate. Discuss each product. Hand out the Alternatives to Hazardous Household Chemicals Table.

Evaluation

Discuss what should be done to reduce exposure to hazardous household chemicals.

1. Follow product directions
2. Safely store products where they are not accessible to children or pets
3. Provide adequate ventilation when using hazardous products
4. Find an non toxic alternative

Guided Practice

Have the students pick an area of their home and inventory the household products and chemicals in that room. Determine whether or not they are toxic. How are they stored? Is there a non-toxic alternative?

Extended Practice

Have the students discuss the results of their inventory with their parents. The students should then write a brief essay describing their parents' reactions, attitudes, and plan of action for dealing with toxic products in their house and garage.

Closure

Have students share their essays and action plans with the class. Research alternative, non-toxic products.

Resources

There are many helpful sites on the Internet which are designed to educate consumers about safe alternatives to popular household products. These sites list non-toxic alternatives for many cleaning supplies and pesticides.

The Idaho Department of Health and Welfare, Division of Health, Bureau of Community and Environmental Health developed a brochure detailing healthy alternatives to common household products. A copy can be viewed, downloaded, and printed at http://www.healthy.idaho.gov, click on "Indoor Air Quality" and then click on "Healthy Homes Brochure" under resources.

Household Hazardous Chemicals Checklist

Before starting, ask your parent to help you look through your house to find the products that are used in each of the following areas. Read the label and look for words like **Corrosive, Flammable, Explosive, Toxic, Poison, Danger, Hazardous, Caution,** and **Warning**. These words are clues that the product is hazardous. If the product is hazardous, put a check in the blank to the left of the item. Circle products that you use.

KITCHEN	BATHROOM
_____Oven cleaner _____Floor cleaner & wax _____Ammonia _____Scouring powder _____Bleach _____Other	_____Tub or tile cleaner _____Drain cleaner _____Toilet bowl cleaner _____Medicine _____Air freshener _____Nail polish remover _____Other
LIVING ROOM	**GARAGE, BASEMENT, SHED**
_____Rug cleaner _____Furniture polish _____Air freshener _____Other	_____Oil _____Antifreeze _____Gasoline or other fuel _____Paint _____Varnish _____Glue _____Paint thinner _____Moth balls _____Other
LAUNDRY ROOM	
_____Bleach _____Spot remover _____Detergent _____Other	
GARDEN, LAWN	**OTHER PLACES & ITEMS**
_____Weed killers _____Bug killers _____Fertilizers _____Other	

*Adapted from: BAGS, BEAKERS, AND BARRELS: An Action Curriculum Toward Resolving Hazardous Materials. Industrial State Policy Center and the School of Natural Resources of Michigan, Cleveland, Ohio: 1987.

Non-Toxic Alternatives to Hazardous Household Chemicals

Did you ever wonder what people used before fancy household cleaners were invented? Like, what did your great-great-grandparents use to clean out a clogged drain? Maybe they used some of the cleaning concoctions below. They may take a little more elbow grease and might seem kind of goofy, but they are better for your health and for the environment than some other household chemicals. Remember to use caution even when using "less-toxic" chemicals.

FOR THIS	TRY THIS
Ants in the house	Red chili powder at point of entry, seal off entry
Brass polish	Salt and vinegar or Worcestershire sauce
Carpet cleaner (to remove fresh food stains)	Club soda
Chrome polish	Cider vinegar
Copper cleaner	Lemon juice with a little salt
Disinfectant	Pine oil or dilute chlorine bleach solution
Drain cleaner	1/2 cup baking soda, 1/2 cup vinegar and 2 quarts boiling water
Fertilizer	Compost your fruit and vegetable scraps
Furniture polish	1 tablespoon lemon oil in 1 pint mineral oil
Hand cleaner (to clean off paint or grease)	Baby oil
Floor cleaner	1 cup white vinegar mixed with 2 gallons water
Mosquito repellent	Cedar chips or Citronella candles
Oven cleaner	For baked-on spills, use 2 tablespoons soap plus 2 tablespoons borax plus warm water and steel wool
Paint: oil-based, stains, and sprays	Water-base, non-aerosol paints
Rust stain remover (to get stains out of clothing)	Lemon juice and salt plus sunlight
Clear shoe polish	Banana peel
Silver polish	1 quart warm water, 1 tablespoon baking soda, a piece of aluminum foil and 1 tablespoon salt
Spot remover	Club soda, lemon juice and salt
Window cleaner	2 tablespoons vinegar mixed in 1 quart water

Source: Sally McDole, WSU-Cooperative Extension, Jefferson County, Washington